

## A new species of the genus *Phrurolithus* (Araneae: Corinnidae) from Mt. Cangshan of Yunnan Province, China

Zizhong Yang<sup>1</sup>, Jianying Fu<sup>2</sup>, Feng Zhang<sup>2</sup>, Yao-Guang Zhang<sup>1\*</sup>

<sup>1</sup> School of Life Science, Southwest University, Chongqing 400715, China

<sup>2</sup> College of Life Sciences, Hebei University, Baoding Hebei 071002, China

Corresponding Author: zhangyg@swu.edu.cn

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**Abstract** — A new species of the genus *Phrurolithus* belonging to family Corinnidae from Mt. Cangshan of Yunnan Province, China, is diagnosed, described and illustrated under the name of *Phrurolithus cangshanensis* sp. nov.

**Key words** — Araneae, Corinnidae, *Phrurolithus*, new species, China, Yunnan

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### Introduction

The spider family Corinnidae currently contains 80 genera and 956 species in the whole world (Platnick 2009), and in terms of the number of described species, the family is the tenth among Araneae. At present ten genera containing 45 species of this family have been reported from China (Platnick 2009). The genus *Phrurolithus* C. L. Koch 1839, includes 69 described species (Platnick 2009); but as pointed out by Yin et al. (2004), “the richness is deceptive as most of the species are probably not closely related to the type species: *P. festivus* (C. L. Koch 1835)”. The genus *Phrurolithus* is like a waste-basket, as many phrurolithine specimens have tibiae and metatarsi I, II with several pairs of spines, and if characters of a specimen do not fit those of known genera, it may be assigned to *Phrurolithus*. Though some of them have already been formerly reassigned to other genera, for example, *Scotinella*, *Liophrurillus*, *Phrurolinillus* and *Otacilia*, this genus remains in need of further research. Eventually, it may be split into several new genera or some species may be transferred to other known genera.

Up to now, 15 species of *Phrurolithus* have been recorded or reported from China (Zhu & Mei 1982; Hu 1984; Zhu & Shi 1982; Song 1990; Song & Kim 1991; Song & Zheng 1992; Song et al. 1994; Yin et al. 1997; Song, Zhu & Chen 1999; Yin et al. 2004; Platnick 2009). Among them eight species are known with both male and female (*P. claripes*, *P. festivus*, *P. pennatus*, *P. sinicus*, *P. bifidus*, *P. hengshan*, *P. splendidus*, *P. palgongensis*), one species with only a single male (*P. daoxianensis*) and six species with only females (*P. dianchiensis*, *P. foveatus*, *P. qiqiensis*, *P. revolutus*, *P. shimenensis*, *P. zhejiangensis*). These single sex species make it difficult to correctly assign them into proper genera. Another three species (*P. komurai*, *P. lynx*, *P. taiwanica*) were recently transferred to the genus *Otacilia*

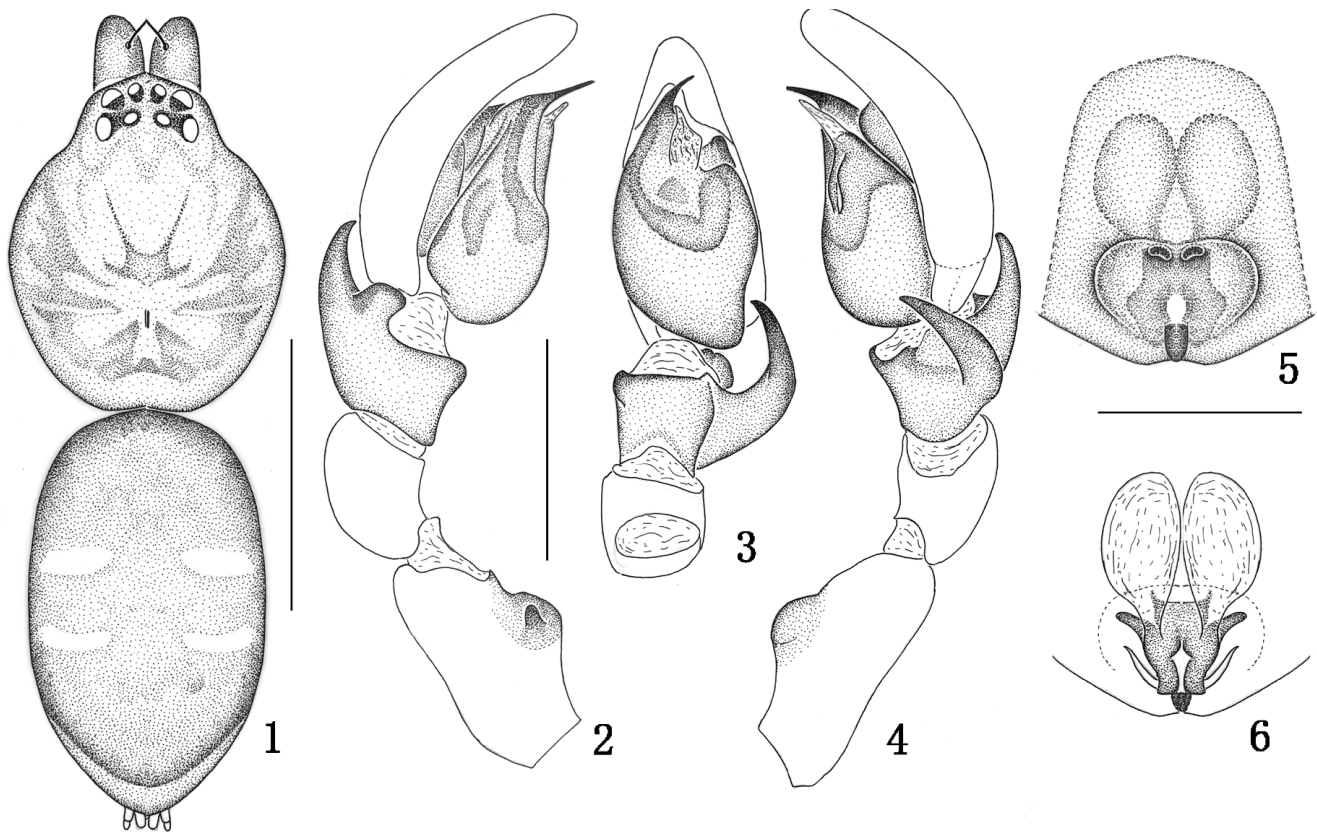
Thorell 1897 (Deeleman-Reinhold 2001; Kamura 2005).

While examining spider specimens collected from Mt. Cangshan, Dali City, Yunnan Province, China, a new species was recognized, and here illustrated and described under the name *Phrurolithus cangshan* sp. nov.

### Materials and Methods

Terminology is standard for Araneae. All measurements given are in millimeters. Carapace length was measured from the anterior margin to the rear margin medially, total length is the sum of carapace and abdomen length, regardless of the petiolus. Eye sizes were measured as the maximum diameter in dorsal or frontal view. The measurements of legs are as follows: total length (femur + patella + tibia + metatarsus + tarsus). All specimens are preserved in 75% alcohol and were examined, drawn and measured under a Tech XTL-II stereomicroscope equipped with an Abbe drawing device. Epigyne were removed and cleared in 10% warm solution of potassium hydroxide (KOH), transferred to alcohol and temporarily mounted for drawing. Holotype, paratypes one male and two females are deposited in the Museum of Hebei University (MHB), and other paratypes in School of Life Science, Southwest University (SWUC).

The following abbreviations are used: ALE, anterior lateral eye; AME, anterior median eye; AER, anterior eye row; MOA, median ocular area; PER, posterior eye row; PLE, posterior lateral eye; PME, posterior median eye; RTA, retrolateral tibial apophysis.



**Figs. 1–6.** *Phrurolithus cangshan*, new species. — 1, male body, dorsal view; 2, male left palp, prolateral view; 3, same, ventral view; 4, same, retrolateral view; 5, epigynum, ventral view; 6, same, dorsal view. Scale lines: 1.0 mm (1), 0.4 mm (2–4), 0.3 mm (5–6).

### Taxonomy

#### *Phrurolithus* C. L. Koch, 1839

*Phrurolithus* C. L. Koch 1839, 110. Type species:

*Macaria festiva* C. L. Koch 1835 (= *Phrurolithus festivus*),  
by original designation.

#### *Phrurolithus cangshan*, new species

(Figs. 1–6)

**Type material.** Holotype male, CHINA: Yunnan Province, Dali City, Mt. Cangshan (25.36°N, 101.98°E), 27 June 2008, collected by ZiZhong Yang. Paratypes: eleven males and six females, same data as holotype.

**Etymology.** The species name is a noun in apposition, derived from the type locality.

**Diagnosis.** This new species resembles *Phrurolithus festivus* (C. L. Koch, 1835) in the shape of the genital organs, but can be distinguished from the latter by: (1) the dorsal marking of abdomen is different (Fig. 1); (2) copulatory openings situated on central part of epigynum (Fig. 5), while that of the latter near posterior margin of epigynum; (3) embolus of palpal organ spine-shaped and longer than that of the latter (Figs. 2–3); (4) palp with retrolateral tibial apophysis large and forked basally.

**Description. Male.** Total length 2.60–3.31. Holotype:

Total length 2.83; carapace 1.35 long, 0.95 wide; abdomen 1.48 long, 0.93 wide. Carapace elongate-ovoid in dorsal view, bulging, highest almost at dorsal groove, widest at coxae II and III (Fig. 1); dark yellow or brown, darker in eye area; cephalic groove and radial furrow brown; thoracic groove short, longitudinal. Eyes moderately large, arranged in two transverse rows. From above, AER slightly recurved, PER slightly wider than AER and procurved (Fig. 1); PME slightly smaller than other eyes; eye diameter: AME 0.02, ALE 0.02, PME 0.01, PLE 0.03; Eye interdistance: AME–AME 0.05, AME–ALE 0.03, PME–PME 0.07, PME–PLE 0.05, ALE–PLE 0.04; MOA length 0.26, anterior width 0.23, posterior width 0.30. Clypeal height 0.05. Chelicera moderately long, brown and with two promarginal and three retromarginal teeth; with one spine frontally. Endites longer than wide (4/3), convex on lateral margin, obliquely depressed, greatly narrowed at palpal insertion; labium broad, rebordered, round distally; sternum truncate at front, pointed behind, with strongly rebordered margins. Measurements of legs: I 2.02(0.45 + 0.24 + 0.60 + 0.46 + 0.27), II 1.80(0.35 + 0.21 + 0.57 + 0.42 + 0.25), III 1.60(0.46 + 0.13 + 0.35 + 0.36 + 0.30), IV 2.61 (0.70 + 0.23 + 0.57 + 0.68 + 0.43). Leg formula: 4123. Legs brown, femur I with one dorsal macroseta and three spines on prolateral side of distal part; tibia I with five pairs of ventral spines; metatarsus I with four pairs of ventral spines;

femur II with one dorsal macroseta and no spines on prolateral side, tibia II with five pairs of ventral spines, metatarsus II with four pairs of ventral spines; femora III and IV each with one dorsal macroseta; other segments have no spines. Abdomen ovoid, yellowish, a dorsal large scutum anteriorly situated, two white markings at shoulders. Male palpus (Figs. 2–4) with large, forked retrolateral tibial apophysis extending posteriorly, and femur with a hump on ventral side. Tegulum convex, without conspicuous apophysis; embolus spine-shaped, relatively long, erect, situated at tip of tegulum; sperm duct short, thick and distinct.

**Female.** Carapace color, eye arrangement, abdominal coloration as for male. Total length 3.53–4.05. One of female paratypes: Total length 3.68; carapace 1.70 long, 1.59 wide; abdomen 1.98 long, 1.04 wide. Clypeal height 0.06. Eye diameter AME 0.03, ALE 0.03, PME 0.02, PLE 0.04. Distance AME–AME 0.07, AME–ALE 0.04, PME–PME 0.08, PME–PLE 0.07, ALE–PLE 0.06. MOA length 0.28, front width 0.26, back width 0.28. Leg measurements: I 2.11(0.49+0.15+0.63+0.56+0.28); II 2.00(0.53+0.21+0.48+0.46+0.32); III 1.56(0.38+0.20+0.36+0.35+0.27); IV 2.34(0.57+0.23+0.63+0.55+0.36). Leg formula: 4123. Epigynum with a pair of copulatory openings, situated centrally (Fig. 5); spermatheca in two parts (Fig. 6), anterior part large, olive-shaped, posterior part smaller, sclerotized and located at lower part of epigynum; a short connecting tube between the anterior and posterior spermathecae.

**Distribution.** Presently known only from the type locality, Mt. Cangshan, Yunnan Province, China.

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#### References

- Bösenberg, W. & Strand, E. 1906. Japanische Spinnen. Abh. Senck. Naturf. Ges., 30, 93–422.  
 Deeleman-Reinhold, C. L. 2001. Forest spiders of South East Asia: with a revision of the sac and ground spiders (Araneae:

- Clubionidae, Corinnidae, Liocranidae, Gnaphosidae, Prodidomidae and Trochanterriidae). Brill, Leiden, 591 pp.  
 Hu, J. L. 1984. The Chinese spiders collected from the fields and the forests. Tianjin Press of Science and Techniques, Tianjin, 482 pp.  
 Kamura, T. 2001. Seven species of the families Liocranidae and Corinnidae (Araneae) from Japan and Taiwan. Acta Arachnol., 50: 49–61.  
 Kamura, T. 2005. Spiders of the genus *Otacilia* (Araneae: Corinnidae) from Japan. Acta Arachnol., 53: 87–92.  
 Koch, C. L. 1835. Arachniden. In Herrich-Schäffer, G. A. W., *Deutschlands Insekten*. Heft 128–133.  
 Koch, C. L. 1839. *Die Arachniden*. Nürnberg, Sechster Band, pp. 1–156.  
 Paik K. Y. 1991. Korean spiders of the genus *Phrurolithus* (Araneae: Clubionidae). Korean Arachnol., 6: 171–196.  
 Platnick, N. I. 2009. The world spider catalog, version 9.5. American Museum of Natural History, online at <http://research.amnh.org/entomology/spiders/catalog/index.html>. (Accessed 18 May 2009)  
 Seo, B. K. 1988. Classification of genus *Phrurolithus* (Araneae: Clubionidae) from Korea. J., Nat. Sci. Res. Inst. Seoul, 7: 79–90.  
 Song, D. X. 1990. On four new species of soil spiders (Arachnida: Araneae) from China. J. Hubei Univ., (nat. Sci.), 12: 340–345.  
 Song D. X. & Kim, J. P. 1991. On some species of spiders from Mount West Tianmu, Zhejiang, China (Araneae). Korean Arachnol., 7: 19–27.  
 Song, D. X. & Zheng, S. X. 1992. A new species of the family Liocranidae (Araneae) of China. Sinozoologia, 9: 103–105.  
 Song, D. X., Zhu, M. S. & Chen, J. 1999. The Spiders of China. Hebei Science & Technology Publishing House, Shijiazhuang, 640 pp.  
 Song, D. X., Zhu, M. S., Gao, S. S. & Guan, J. D. 1994. Notes on some species of spiders from Liaoning Province, China (Araneae: Liocranidae; Hahniidae). Acta Zootaxon. Sini., 19: 168–171.  
 Tu, H. S. & Zhu, M. S. New records and one new species of spiders from China. J. Hebei Normal Univ., (nat. Sci. Ed.), 1986(2): 88–97.  
 Yaginuma, T. 1967. Revision and new addition to fauna of Japanese spiders, with descriptions of seven new species. Lit. Dep. Revi., Otomon Gakuin Univ., Osaka 1: 87–107.  
 Yin C. M., Peng, X. J. Gong, L. S. & Kim, J. P. 1997. Three new species of the genus *Phrurolithus* (Araneae: Liocranidae) from China. Korean Arachnol., 13 (1): 25–30.  
 Yin, C. M., Ubick, D., Bao, Y.H. & Xu, X. 2004. Three new species of the spider genus *Phrurolithus* from China (Araneae: Corinnidae). J. Arachnol., 32: 270–275.  
 Zhu, C. D. & Mei, X. G. 1982. A new species of spider of the genus *Phrurolithus* (Araneae: Clubionidae) from China. J. Bethune medi. Univ., 8: 49–50.  
 Zhu, M. S. & Shi, J. G. 1982. Crop field spiders of Shanxi Province. Agriculture Planning Committee of Shanxi Province, 237pp

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